

AMENDMENTS TO THE CLAIMS

Upon entry of this amendment, the following listing of claims will replace all prior versions and listings of claims in the pending application.

IN THE CLAIMS

Please cancel claims 2, 12, and 23 without prejudice or disclaimer of the subject matter therein.

Please amend the pending claims as follows:

1. (Currently Amended) A method of establishing communications, the method comprising:
 - automatically provisioning a primary circuit for communications between a first node and a second node in a communications network; and
 - automatically provisioning a protection circuit for communications between the first node and the second node;
 - wherein the primary and protection circuits are provisioned in response to receiving a request to establish communications between the first and second nodes; and
 - wherein a sum of administrative weights of all links forming the primary and protection circuits is minimized with respect to available links.

2. (Cancelled)

3. (Cancelled)

4. (Currently Amended) The method of claim ~~2~~1 wherein the links forming the primary and protection circuits are non-overlapping.

5. (Original) The method of claim 4 wherein, except for the first and second nodes, the primary and protection circuits do not share any other nodes.

6. (Currently Amended) The method of claim 2-1 including:

determining a first route between the first and second nodes in the network so that a sum of original administrative weights associated with links along the first route is minimized with respect to available links;

establishing an augmented network corresponding to the communications network;

determining a second route between the first and second nodes based on the augmented network so that a sum of administrative weights associated with links along the second route is minimized with respect to available links;
and

combining the first and second routes to obtain first and second paths between the first and second nodes, wherein the first and second paths correspond to the primary protection circuits.

7. (Original) The method of claim 6 wherein augmenting the network includes:

assigning a new administrative weight for each link along the first route based on the original administrative weight corresponding to the same link; and

limiting a permissible direction of communications for each link based on a direction established for that link in the first route.

8. (Original) The method of claim 7 wherein each new administrative weight has a negative value and an amplitude equal to the original administrative weight for the same link.

9. (Original) The method of claim 6 wherein combining the first and second routes includes eliminating from consideration links included in both the first and second routes.

10. (Currently Amended) The method of claim ~~2~~1 including using the protection circuit for communications between the first and second nodes if a failure occurs in the primary circuit.

11. (Currently Amended) An article comprising a computer readable medium including instructions for causing a computer system to:

provision a primary circuit for communications between a first node and a second node in a communications network; and

provision a protection circuit for communications between the first node and the second node;

wherein the provisioning of the primary and protection circuits occurs in response to a request to establish communications between the first and second nodes; and

wherein a sum of administrative weights of all links forming the primary and protection circuits is minimized with respect to available links.

12. (Cancelled)

13. (Cancelled)

14. (Currently Amended) The article of claim ~~12~~11 wherein the links forming the primary and protection circuits are non-overlapping.

15. (Original) The article of claim 14 wherein, other than the first and second nodes, the primary and protection circuits do not share any other nodes.

16. (Currently Amended) The article of claim ~~12~~11 including instructions for causing the computer system to:

determine a first route between the first and second nodes in the network so that a sum of original administrative weights associated with links along the first route is minimized with respect to available links;

establish an augmented network corresponding to the communications network;
and

determine a second route between the first and second nodes based on the augmented network so that a sum of administrative weights associated with links along the second route is minimized with respect to available links; and

combine the first and second routes to obtain first and second paths between the first and second nodes, wherein the first and second paths correspond to the primary and protection circuits.

17. (Original) The article of claim 16 wherein the instructions for causing the computer system to augment the network include instructions for causing the computer system to:

assign a new administrative weight for each link along the first route based on the original administrative weight corresponding to the same link; and

limit a permissible direction of communications for each link based on a direction established for that link in the first route.

18. (Original) The article of claim 17 wherein each new administrative weight has a negative value and an amplitude equal to the original administrative weight for the same link.

19. (Original) The article of claim 16 wherein the instructions for causing the computer system to combine the first and second routes includes instructions for causing the computer system to eliminate from consideration links included in both the first and second routes.

20. (Currently Amended) The article of claim ~~12~~11 including instructions for causing the computer system to use the protection circuit for communications between the first and second nodes if a failure occurs in the primary circuit.

21. (Currently Amended) A communications system comprising:

- a plurality of nodes;

- transmission facilities connecting the nodes;

- a database storing information regarding characteristics of the transmission facilities;

- memory storing instructions to:

- provision a primary circuit for communications between a first node and a second node in the network; and

- provision a protection circuit for communications between the first node and the second node; and

- a processor for executing the instructions in response to a request to establish communications between the first and second nodes;

- wherein a sum of administrative weights of all transmission facilities forming the primary and protection circuits is minimized with respect to available links.

22. (Original) The system of claim 21 wherein the system comprises a plurality of protocol levels and wherein the processor can execute the instructions with respect to any of the protocol levels.

23. (Cancelled)

24. (Currently Amended) The system of claim ~~23~~21 wherein the transmission facilities forming the primary and protection circuits are non-overlapping.

25. (Original) The system of claim 24 wherein, other than the first and second nodes, the primary and protection circuits do not share any other nodes.

26. (Currently Amended) The system of claim ~~23~~21 wherein the memory includes instructions to:

determine a first route between the first and second nodes in the network so that a sum of original administrative weights associated with transmission facilities along the first route is minimized with respect to available links;

establish an augmented network corresponding to the communications network;
and

determine a second route between the first and second nodes based on the augmented network so that a sum of administrative weights associated with transmission facilities along the second route is minimized with respect to available links; and

combine the first and second routes to obtain first and second paths between the first and second nodes, wherein the first and second paths correspond to the primary and protection circuits.

27. (Original) The system of claim 26 wherein the instructions augment the network include instructions to:

assign a new administrative weight for each transmission facility along the first route based on the original administrative weight corresponding to the same transmission facility; and

limit a permissible direction of communications for each transmission facility based on a direction established for that transmission facility in the first route.

28. (Original) The system of claim 27 wherein each new administrative weight has a negative value and an amplitude equal to the original administrative weight for the same transmission facility.

29. (Original) The system of claim 21 wherein the instructions to combine the first and second routes includes instructions to eliminate from consideration transmission facilities included in both the first and second routes.

30. (Currently Amended) The system of claim ~~23~~21 wherein the memory includes instructions to use the protection circuit for communications between the first and second nodes if a failure occurs in the primary circuit.